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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/383,227	08/26/1999	JERRY R. SCHLOEMER		6327

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LEO J AUBEL
111 RIVERSHIRE LANE
LINCOLNSHIRE, IL 60069

EXAMINER

GREEN, MIGUEL D

ART UNIT

PAPER NUMBER

2681

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6

Please find below and/or attached an Office communication concerning this application or proceeding.

Handwritten signature

Office Action Summary

Application No.

09/383,227

Applicant(s)

SCHLOEMER, JERRY R.

Examiner

Miguel D. Green

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 21 November 2001 is: a) ☒ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Drawings, Specification and Claim Objections

In light of the amendment filed 1/11/02, the previous objections are withdrawn.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
2. In claim 10, the applicant recites (beginning on page 2, line 13 of the amendment) limitations of selection criteria i) – iv) for designating bands of operation as per a method of communicating between nodes of a multi-node communications system (a node being either a base site or a remote). However, the selection criteria as recited are unclear. For example, how is the "constraint" (line 14) actually used in selecting a band, and more significantly, what in fact is this "constraint" (lines 14-20)?! For the purpose of examination, the selection criteria are read to mean simply that the band of operation between various nodes is selected so as to avoid duplex operation problems when transmitting and receiving between nodes (blind node to base site, remote to base site, between blind nodes, and remote to base then through repeater to remote), i.e., to avoid miscommunication while routing a telephone (duplex) call via various paths afforded by the system.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frost (US 4,284,848) in view of Gillig et al (US 5,127,042).

Regarding claim 10, Frost discloses a multi-base, multi-remote communications system, which is in one embodiment a cellular radio system (note Abstract and col.3 lines 6-11). In Frost, radio subscriber stations read on multiple base stations, some of which act as band switching relays/repeater stations (i.e., blind nodes); the destination subscribers read on multiple remotes (col.1 lines 44-49 and Fig.6). A base site (i.e., repeater station) transmits to a destination remote station in one band that is separate from another band that is concurrently being used to support another voice call (col.1 lines 49-60). The voice-supporting band is read to be a first band with which the base site receives (at least), while transmitting (at least, inherent in relaying) another call in a second (or other) band; this scheme admittedly avoids duplex operation problems (col.1 lines 53-60). In addition, in light of the above ***35 USC § 112*** rejection, Frost broadly teaches method steps of communicating between base sites in order to avoid duplex problems, which includes designating the bands of operation according to unspecified yet implicit generic criteria.

Thus, Frost discloses multiple band operation of the base sites in a multi-base, multi-remote communications system, wherein the remote station is a mobile radio telephone of a subscriber. Frost fails to specify remote station details and fails to disclose the remote station transmitting in a first band and receiving in another (second band). However, Gillig teaches a mobile communications system including a dual-mode transceiver remote station that does

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transmit in a first band and receive in another. In the event that the remote station is currently involved in a call on a first band (i.e., in a first system), the station is still able to receive a call on a second band (i.e., from another system); note Fig.7. It is inherent that one system operates in one band and the other system in another, since each system thereby distinguishes which mobile radio-telephone users it provides service to, and moreover, to follow government regulations regarding radio communication systems competing in the same airspace. It would have been obvious to one of ordinary skill in the art at the time of the invention for the remote station of Frost to be more specifically a dual-mode transceiver as taught by Gillig, since a remote with this additional functionality allows its user to be more flexible in using a duplex, radio communications system.

4. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frost and Gillig, and further in view of Daniel et al (US 5,860,058).

Regarding claim 11, Frost teaches in a multi-base, multi-remote communications system, including cellular radio. As argued above in re claim 10, Frost discloses base sites (i.e., repeater stations) transmitting to destination remote stations in one band that is separate from another band concurrently being used to support (i.e., receiving in progress) another voice call (col.1 lines 49-60). Selected intermediate base sites as taught by Frost read on the limitation **(b)** a blind node that does not support direct base to remote communication (col.4 lines 29-40), blind nodes as further characterized in subsequent limitations **(c)-(f)** (not literally repeated here for sake of brevity). Gillig, given the previously discussed reasoning, is combined with Frost to further teach the remote station transmitting and receiving on two separate bands.

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Together, Frost and Gillig teach avoiding duplex operation problems while routing calls throughout a simultaneous communication, multi-band call routing system; these references fail to specifically teach the use of routing tables while routing calls. However, Daniel teaches a routing system of call connection and call routing comprising routing tables according to limitation (a). Daniel teaches the routes selectable from more than one possible route to a desired destination (note Figs.1&2 and col.3, lines 1-44), and routing tables (Fig.2) to permit different destinations for different calls selectively based on telephone number indications (note col.3, lines 33-38). In Daniel, when a call is initiated by entering a user's (CU 30) telephone number, a number translation is made to assign a carrier frequency based on that user's telephone number (col.4, lines 37-45). It would have been obvious to one of ordinary skill in the art at the time of the invention to include routing tables, as taught by Daniel, as an additional feature in the simultaneous, multi-band call routing system as taught by Frost and Gillig, since routing tables advantageously provide greater accuracy in routing calls throughout a communication network.

Regarding claims 12 and 15, the combination of Frost, Gillig and Daniel teaches the system features as above, wherein it is inherent that at least one of the base stations and blind nodes are geographically positioned within communication range of each other. For example, in Frost, the central telephone office must be within range of its repeaters by virtue of inherent limitations present in line transmission physics. Moreover, since specific routes are not specified, performing call routing inherently involves using the best route, including one that has a call alternating between base sites and blind nodes.

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5. Claims 13 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frost, Gillig and Daniel as applied to claim 11 above, and further in view of Chang et al (US 5,890,067).

Regarding claims 13 and 16, the combination of Frost, Gillig and Daniel teaches the system features as above in re claim 11. This combination does not teach the use of directional antennas or signal strength determinations (i.e., testing means for dynamic signal to interference ratios) and providing antenna patterns dependent upon actual received signal strength. However, Chang teaches a radio communication system including adaptive (i.e., directional) antennas, including a scanning receiver that reads on testing means, maximizing received signal strength and antenna patterns dependent upon actual received signal strength (note col.3, lines 50-63; col.4, lines 45-63; col.5 lines 45-55; and Figs.7&8). It would have been obvious to one of ordinary skill in the art at the time of the invention for the system of Frost, Gillig and Daniel to also include antennas with antenna patterns and received signal strength determination, and further making certain decisions given these determinations, as taught by Chang to be used to beam node to node communication, so that communication may be optimized at least cost.

6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel et al and Frost as applied to claim 11 above, and further in view of Benkner (US Pat. No. 6,023,623).

Regarding claim 14, the combination of Frost, Gillig and Daniel teaches the system features as above in re claim 11. This combination does not teach further including the usage of dynamic signal to interference tests as an aid to assigning channels. However, Benkner teaches in mobile radio networks a process for dynamically assigning channels based on interference tests

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(note col.2, lines 12-29). It would have been obvious to one of ordinary skill in the art at the time of the invention for the system of Frost, Gillig and Daniel to further include the usage of the process as taught by Benkner, so that a channel is assigned having the utmost integrity (i.e., as free from interference as possible) and to provide good propagation conditions.

7. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel et al in view of Chang et al.

Regarding claim ¹⁷9, Daniel et al teaches in a multi-node, multi-remote radio telephone communications system (note Fig.1) wherein the mobiles (30) transmit on channels in a first band (42) and base nodes (12 as defined in col.3 lines 11-12) transmit on channels in a second band (40), a routing system of call connection and call routing between nodes comprising routing tables to permit different destinations for different calls selectively based on telephone number indications (col.4, lines 37-45 and Fig.2).

Daniel et al does not teach providing antennas for communications between nodes, and selecting antenna patterns and a node-to-node route based on actual signal strength measurements. However, Chang et al teaches a radio communication system including adaptive (i.e., directional) antennas maximizing received signal strength and antenna patterns dependent upon actual received signal strength (note col.3, lines 50-63; col.4, lines 45-63; and Figs.7&8). It would have been obvious to one of ordinary skill in the art at the time of the invention for the system of Daniel et al to further include antennas selecting antenna patterns as taught by Chang et al to be used to beam node to node communication, so that communication may be optimized at least cost. Furthermore, the selection of node-to-node routing based on actual signal strength is

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consequential in the system, since where the antenna is directed to inherently determines the path of communicating information.

Response to Arguments

Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection. Nevertheless, in regards to claim 17, the following is made of record:

The applicant presumes that the mobile as taught in Chang has no antenna beam selection choice. However, the applicant does not claim that beam selecting is done exclusively by the mobile (Amendment, page 12). Instead, claim 17 recites "...a method of routing of call...comprising,... c) selecting antenna patterns between nodes...". For the purpose of examination, the examiner read the claim broadly so as not to assume what (i.e., system node) in the method actually does the selecting. Thus, despite the applicant's presumption, Chang does teach selecting antenna patterns, albeit a selection choice made by the system, in performing beam-spot configuration adjustment.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Miguel D. Green whose telephone number is 703-308-6729. The examiner can normally be reached on Mon-Fri (9am - 5pm). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dwayne D. Bost can be reached on 703-305-4778. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular and for After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to customer service personnel whose telephone number is 703-306-0377.



MDG

March 19, 2002



DWAYNE BOST
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600